

## MASCOT08

IAC-CNR, Roma, Italy

Thursday 23

8.30 Registration

9.10 **MASCOT08**

*IAC Welcome: Michiel Bertsch*

*IMACS Welcome: Robert Beauwens  
Robert Vichnevetsky*

*ISGG Welcome: Bharat K. Soni*

Lecture Session I Chairperson: Robert Vichnevetsky

*Lecturer: Francois Guibault*

9.20 Subdivision-based geometric domain description for integrated mesh adaptation and geometry modification

*F. Guibault, M. Wang*

*Lecturer: Jochem Häuser*

10.00 Direct simulation Monte Carlo for the European expert space vehicle

*J. Hauser, J-M Muylaert, T. Gollnick*

10.40 *Coffee break*

Session I Chairperson: Maria Morandi Cecchi

11.10 Dirichlet to Neumann boundary conditions in generalized curvilinear coordinates for multiple scattering

*S. Acosta, V. Villamizar*

11.35 Moving the sources in the BS method

*A. Garcès, R. Beauwens, G. Van den Eynde*

12.00 Time-harmonic method for the linearized Euler equations for turbo-machinery noise propagation through engine exhaust

*R. Arina, A. Iob*

12.25 Mean value interpolation in algebraic numerical grid generation

*C. Conti, R. Morandi*

12.50 *Lunch time*

Session II Chairperson: Jochem Häuser

14.35 A spline based algorithm for the analysis of the flow of Scirocco plasma wind tunnel nozzle

*E. Bucchignani, G. Pezzella, M. Marini*

15.00 Optimization of the iteration parameters of the simulation of incompressible flow by genetic algorithm

*A. Shklyar, A. Arbel*

15.25 Numerical analysis of laminar separation bubbles

*P. Catalano*

15.50 *Coffee break*

Session III Chairperson: Renzo Arina

16.15 IESTA: a modular distributed simulation platform for the evaluation of air transport systems

*R. Kervarc, A. Elie, T. Dubot, J. Bourrely*

16.40 Assessment of air traffic environmental impacts using a large numerical code in a modular platform

*R. Kervarc, A. Elie, M. Charlotte, P. Carle*

17.05 Advanced numerical techniques for simulation of wingtip vortex

*S. Ahmad, W. Brewer, P. Cinnella*

20.30 *Workshop Dinner*

Friday 24

Lecture Session II Chairperson: Robert Beauwens

*Lecturer: Jochem Häuser*

9.10 Numerical electro and magneto-fluidynamics with applications

*J. Hauser, J-M. Muylaert, O. Rybatzki*

*Lecturer: Bharat K. Soni*

10.00 Computational simulations & 3D visualization applications in research & development, education, training & re-training

*B.K. Soni*

10.40 *Coffee Break*

Session IV Chairperson: Francois Guibault

11.10 Age-dependent pediatric finite element model development and validation

*J-E. Kim, Y. Ito, A.M. Shih, B.K. Soni*

11.35 Mathematical methods for the analysis of left ventricular wall motion

*B. Quatember, M. Mayr, W. Recheis, S. Demertzis, G. Allasia, R. Cavoretto, A. De Rossi, E. Venturino*

12.00 Design of an advanced user interface with dynamic windows enabling cardiologists to handle complex mathematical tasks

*M. Mayr, B. Quatember*

12.25 New gradient vector flow field for segmentation of breast tumors in ultrasound images

*A. Rodtook, S.S. Makhanov*

12.50 *Lunch time*

Session V Chairperson: Vianey Villamizar

14.35 Residual correction techniques for the efficient solution of the inverse medium problem

*P. Maponi*

15.00 An analysis of a spline collocation method for a normalized flux

*K. Surla, Z. Uzelać, L. Teofanov*

15.25 The solution of Tikhonov regularized equations arising from Fredholm integral equations of first kind

*N. Egidi*

15.50 *Coffee break*

Session VI Chairperson: Edoardo Bucchignani

16.15 Plasmon-polariton waveguides: mathematical modelling and numerical simulations

*P. Curci*

16.40 Neural modelling and fault diagnosis for prevention of cascading events in electric power systems

*G.G. Rigatos, P. Siano*

- 17.05 Applications of confined one-dimensional ultracold Bose gases with dipolar interactions  
S. De Palo, R. Citro, E. Orignac, P. Pedri,  
M.L. Chiofalo

## Saturday 25

### Session VII Chairperson: Pierluigi Maioni

- 9.25 Quadrature rules for Cauchy principal value integrals with refinable functions  
L. Gori, E. Pellegrino, E. Santi

- 9.50 The best-approximation weighted-residuals method in finite elements  
F. Marcuzzi, M. Morandi Cecchi

- 10.15 Time-frequency analysis of magnetoencephalographic data  
G. Bretti, F. Pitolli

### 10.40 *Coffee Break*

### Lecture Session III Chairperson: Bharat K. Soni

*Lecturer:* Alfio Borzi

- 11.10 Multigrid methods for PDE optimization  
A. Borzi

### Session VIII Chairperson: Alfio Borzi

- 11.50 Validation and assessment of turbulence transition models  
G. Cheng, R. Nichols, K.D. Neroorkar,  
P.G. Radhamony, B.K. Soni

- 12.15 Multigrid variational image segmentation and accomodative algorithms  
R.M. Spitaleri

### 12.40 *Closing Greetings*

*Consiglio Nazionale delle Ricerche*

## MASCOT08

*Co-sponsors:*

*IAC-Istituto per le Applicazioni del Calcolo-CNR  
SIMAI-Societa' Italiana di Matematica Applicata e Industriale  
GNCS-Gruppo Nazionale di Calcolo Scientifico*

*Meetings Honorary Chair: Robert Vichnevetsky*

*Meeting Chairs: F. Pistella, R.M. Spitaleri*

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*webpages:*

<http://www.iac.rm.cnr.it/~rosa/convegno>

*Consiglio Nazionale delle Ricerche*



INTERNATIONAL SOCIETY  
OF GRID GENERATION  
**ISGG**

IMACS/ISGG Workshop

October 23-25, 2008

## MASCOT08

8<sup>th</sup> Meeting  
on Applied Scientific Computing  
and Tools

*Grid Generation, Approximation  
and Visualization*

Istituto per le Applicazioni del Calcolo-CNR  
Viale del Policlinico 137  
Roma, Italy